sources Control Board to reconsider relying on this agreement as a basis for water rights decision-making on the river.

Inadequate flows and pumps trouble the Lower San Joaquin River

Most of the stream flow that escapes the numerous diversions upstream is drawn from the lower San Joaquin River. It moves, via Old River. to the federal Central Valley Project pumps near Tracy. Old River is, literally, an historic channel of the San Joaquin. Ocean-bound salmon and steelhead juveniles are sucked along with the water to the pumps. where they die. As the amount of water drawn to the pumps increases, so does the mortality rate of young salmon and steelhead.

The Department of Fish and Game estimates that *up to* 96% of the fall-run king salmon juveniles born in the San Joaquin River watershed are lost to federal and State Water Project pumping in the Delta, It is imperative that efforts to conserve salmon and steelhead in the San Joaquin River basin include the restoration of stream flow in the lower river to allow safe downstream passage of young fish.

The Department of Fish and Game made vigorous recommendations at the 1987 Bay-Delta water hearings for enough stream flow to allow juveniles to pass the pumps. It also advised that a gate or some other device be constructed and operated at the Old River diversion during peak migration periods. If recovery of salmon and steelhead trout resources is to become a reality in this watershed, the state must adopt these recommendations.

The Solutions

ACTION: The State Water Resources Control Board has the power to restore the salmon and steelhead resources of the San Joaquin River basin. It should do all of the following:

- Adopt an interim moratorium on further allocation of stream flow in the basin;
- Complete its inventory of the unappropriated water resources in the basin;
- With assistance from the Department of Fish and Game, determine the stream flow and water quality conditions necessary for young salmonids to move safely from their home streams to the western Delta;
- Direct the major water rights holders to cooperate in determining how to reorganize water use through exchanges, conjunctive use opportunities and modification of state and federal projects; and
- Place enforceable fish conservation conditions on those water permits and licenses which now lack them, including the operations of the federal Friant Dam. (Many of the original water sales contracts for Friant water will terminate in 1990. It is appropriate, now, to include Friant operations in the search for water needed to assure juvenile salmon safe passage to the Delta.)

NOTE: Many recommendations affecting the San Joaquin River Basin are presented in Section One.

Central and South Coast Streams

The Setting

This region encompasses California's coast south of San Francisco Bay. Silver salmon historically spawned in California's coastal streams as far south as Monterey Bay. *Steelhead trout once ranged as far south as Mexico.* The exploitation of these coastal streams for irrigation and domestic water supplies has severely reduced the number that still support annual salmon and steelhead spawning runs. One of the largest annual steelhead runs in the area is found on the Carmel River – a run of nearly 2,000 spawners. This spawning population survives from a run of **20,000 fish some** sixty years ago.

The Problems

Urbanization of this coastal area and the

PHOTO: JERRY SMITH

Artificial sandbar breaching at coastal lagoons kills young fish.

use of streams for domestic water supplies and irrigation are the reasons behind the fishery resource decline here. As with the San Francisco Bay area, the scattered salmon and steelhead runs of the south and central coast have attracted significant public concern and restoration effort. Despite the remnant size of these populations, restoration projects are underway in the Monterey Bay streams, Carmel River, San Luis Obispo Creek, Santa Ynez River, Gaviota Creek and even Malibu Creek in urban Los Angeles County. There are many more streams, as far south as the Santa Margarita River in San Diego County, where salmonid populations can be restored.

The public enthusiasm for stream and fish restoration in these and other California watersheds reveals a poignant part of human nature: things are frequently prized more fully when they are lost or nearly lost. The energy that citizens have generously given to the care of Malibu Creek's handful of steelhead spawners is as great as though it were a run of 20,000. The absolute number may matter less than its relationship to the setting. This "scarcity value' was recognized by the State Water Resources Control Board in its 1987 decision ordering the restoration of the remnant steelhead trout resource of the Santa Clara River in Ventura County.

Breaching sand bars at lagoons a problem

It appears that some coastal steelhead populations have been able to survive because of their ability to adapt to unusual stream conditions. Steelhead survive surprisingly high water temperatures in some of the coastal lagoons. These lagoons form when there is not sufficient stream flow to keep the mouth of the stream open to the sea. Stream flow is reduced by upstream diversions.

Ironically—and tragically—hardy steelhead that have managed to adapt to these high lagoon temperatures often face an additional lethal assault Coastal landowners or local agency officials open lagoons by bulldozing the sandbars when water levels threaten to flood nearby crops and developments. The lagoon may hold an entire year's crop of juvenile steelhead, or even steelhead from a prior brood year. The sudden exposure to the sea has a catastrophic, fatal effect on these fish. Sections 1600 through 1603 of the Fish and Game Code prohibit altering lagoons without the permission of the state. These codes should be strengthened and the DFG must be more consistent in its enforcement of these provisions.

The Solutions

ACTION: The Director of the Department of Fish and Game should take steps to assure that Fish and Game Code Sections 1600 through 1603 are being fully enforced to assure that lagoon-locked fish remain safe from unauthorized sandbar alteration.